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10/562,592	07/05/2006	Hiromu Ueshima	174.033	4280

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EXAMINER	
HICKS, CHARLES V	

ART UNIT	PAPER NUMBER
2629	

NOTIFICATION DATE	DELIVERY MODE
06/10/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@japalaof.com

Office Action Summary	Application No.	Applicant(s)	
	10/562,592	UESHIMA ET AL.	
	Examiner	Art Unit	
	CHARLES HICKS	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/23/2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *33-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33-62* is/are rejected.

7)☒ Claim(s) *47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to amendments filed 03/23/2011. Claims 33, 36, 41, 43, 44, 46, 47, 48, 51, 52 and 53 have been amended. Claims 33-62 are currently pending.

Claim Objections

Claim 47 is objected to because of the following informalities: Claim 47 is amended, but is indicated as "previously presented". Examiner will interpret claim 47 to be amended. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 33, 36, 38-46, 51-56, 58-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manwaring (US 2002/0098897) in view of Watanabe et al. (US 6,023,293).

In reference to claim 33, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article which is held and given the motion by an operator is indicated, the operation article defining a reflecting surface (Manwaring, Fig. 14; pg. 3, par. 41; a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute state information on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54,

processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures);

and an image display processing unit operable to display on the display device a first object representing a movement locus of the operation article, the image processing unit operable to display the first object at a time determined by the first trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Claim 36 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanbe teaches wherein the state information computing unit computes positional information as the state information of the reflecting surface responsive to speed information as the state information of the reflecting surface exceeding a predetermined first threshold value (Manwaring, pg. 3, par. 46),

until the speed information becomes less than a predetermined second threshold value (Manwaring, pg. 7, par. 97; pg. 1-2, par. 13-14),

or computes the positional information of the reflecting surface after the speed information of the reflecting surface exceeds the predetermined first threshold value but before the reflecting surface deviates beyond a photographing range of the light sensing unit (Manwaring, pg. 7, par. 97; pg. 1-2, par. 13-14; pg. 4, par. 63; light sensing units are pixel arrays as discussed above),

the state information computing unit determines, responsive to the positional information of the reflecting surface being obtained for three or more times, appearance of the first object representing the movement locus of the operation article on the basis of the first positional information of the reflecting surface and the last positional information of the reflecting surface, and the state information computing unit generates,

responsive to the positional information of the reflecting surface being obtained for three or more times, the first trigger on the basis of the state information (Manwaring, Fig. 12; pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73).

Claim 38 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe teaches further comprising a correction information acquisition unit operable to acquire correction information for correcting positional information as the state information of the reflecting surface, and the state information computing unit computes corrected positional information by using the correction information (Manwaring, pg. 6, par. 90).

Claim 39 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the first object includes a plurality of objects (Manwaring, Fig. 22).

Claim 40 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the image display processing unit displays the first object representing the movement locus of the operation article on the display device after a lapse of a predetermined time from a generation of the first trigger (Manwaring, pg. 5, par. 73; pg. 1-2, par. 13-14, processing and image displayed following a dedicated time after the first exposure trigger).

In reference to claim 41, Manwaring teaches an information processing apparatus for displaying an image on a display device on the basis of a result of detecting an operation article, the operation article defining a plurality of reflecting surfaces, which is grasped and given a motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41; a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3, 5; pg. 2, par. 22, 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the gulf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's);

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100ms; pg. 5, par. 73),

and determine which of the plurality of reflecting surfaces is photographed on the basis of the state information and generate a first trigger on the basis of the state information (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 12, processed information displayed as determined by the first exposure trigger);

and an image display processing unit operable to display an image on the display device, the image depending on the determined reflecting surface, said image display processing unit operable to display the image at a time determined by the first trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Claim 42 is rejected as being dependent on rejected claim 41 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes area information, profile information, or ratio information indicative of a profile, about the reflecting surface (Manwaring, Fig. 12-13; pg. 6-7, par. 97).

In reference to claim 43, Manwaring teaches an information processing apparatus for displaying an image on a display device on the basis of a result of detecting an operation article, the operation article defining a plurality of reflecting surfaces, which is grasped and given a motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3, 5; pg. 2, par. 22, 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the gulf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's);

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures);

and an image display processing unit operable to display an image on the display device in accordance with the state information of the plurality of reflecting surfaces, the image display processing unit operable to display the image at a time determined by the first trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

In reference to claim 44, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

an area information computing unit operable to compute area information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a trigger responsive to the area information exceeding a predetermined threshold value (Manwaring, pg. 5, par. 70; Fig. 9A, trigger is the first exposure, triggering the second and subsequent exposures);

and an image display processing unit operable to display a predetermined object on the display device in response to the trigger, the image display processing unit operable to display the predetermined object at a time determined by the trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Claim 45 is rejected as being dependent on rejected claim 44 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the image display processing unit moves the predetermined object in response to positional information of the reflecting surface (Manwaring, Fig. 24),

and a color of the predetermined object is transparent or translucent (Manwaring, Fig. 24).

In reference to claim 46, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first

exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures);

and an image display processing unit operable to display a character string on the display device, and wherein said image display processing unit displays a character string differing from the character string on the display device at a time determined by the first trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

In reference to claim 51, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute station information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures);

and a process fixing unit operable to fix execution of a predetermined process on the basis of the state information of the reflecting surface at a time determined by the first trigger (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a

plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

In reference to claim 52, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and an image display processing unit operable to display a predetermined object on the display device responsive to the state information that is obtained successively meeting a predetermined condition (Manwaring, Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

In reference to claim 53, Manwaring teaches an information processing apparatus for displaying an image on a display device on the basis of a result of

detecting an operation article, the operation article defining a reflecting surface, which is grasped and given a motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures);

and an image display processing unit operable to display on the display device a guide which instructs an operation direction and operation timing of the operation article and display an image on the display device in accordance with the state information, at a time determined by the first trigger (Manwaring, Fig. 12-13; pg. 5, par. 73; Fig. 12, processed information displayed as determined by the first exposure trigger).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Claim 54 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13, pg. 5, par. 73).

Claim 55 is rejected as being dependent on rejected claim 43 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, number information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claim 56 is rejected as being dependent on rejected claim 46 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claim 58 is rejected as being dependent on rejected claim 51 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claim 59 is rejected as being dependent on rejected claim 52 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claim 60 is rejected as being dependent on rejected claim 53 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claim 61 is rejected as being dependent on rejected claim 41 as discussed above and further, Manwaring as modified by Watanabe teaches wherein said operation article is provided with a plurality of reflecting surfaces (Manwaring, pg. 1, par. 9).

Claim 62 is rejected as being dependent on rejected claim 43 as discussed above and further, Manwaring as modified by Watanabe teaches wherein said operation article is provided with a plurality of reflecting surfaces (Manwaring, pg. 1, par. 9).

Claims 47 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manwaring (US 2002/0098897) as modified by Watanabe et al. (US 6,023,293), and further in view of Pryor (US 7,098,891).

In reference to claim 47, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a state information computing unit operable to compute state information of the operation article on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73),

and generate a first trigger on the basis of the state information (Manwaring, pg. 5, par. 70; Fig. 9A, first trigger is the first exposure, triggering the second and subsequent exposures).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Manwaring as modified by Watanabe however fails teach an image display processing unit operable to update a background image at a time determined by the first trigger.

Pryor discloses an information processing apparatus, analogous in art with that of Manwaring as modified by Watanabe, such that an image display processing unit is operable to update a background image at a time determined by the first trigger (Pryor, col. 25, ll. 31-37).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the information processing unit of Manwaring as modified by Watanabe, such that an image display processing unit is operable to update a background image at a time determined by the first trigger, as taught by Pryor.

As one of ordinary skill in the art would appreciate, the suggestion/motivation would have been to display more realistic motion in response to user actions.

Claim 57 is rejected as being dependent on rejected claim 47 as discussed above and further, Manwaring as modified by Watanabe teaches wherein the state information includes speed information, moving direction information, moving distance information, velocity vector information, acceleration information, movement locus information, area information, or positional information (Manwaring, Fig. 12-13; pg. 5, par. 73).

Claims 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manwaring (US 2002/0098897) as modified by Watanabe et al. (US 6,023,293), and further in view of Numazaki et al. (US 6,144,366).

In reference to claim 48, Manwaring teaches an information processing apparatus for displaying on a display device an image on which a motion of an operation article is indicated, the operation article defining a reflecting surface, which is held and given the motion by an operator (Manwaring, Fig. 14; pg. 3, par. 41, a golf club and golf ball put in motion by the user),

the information processing apparatus comprising: a light sensing unit operable to receive light reflected from the operation article to generate a first signal (Manwaring, Fig. 3 and 5; pg. 2, par. 22 and 24; pg. 2, par. 15, two light sensing cameras receiving light reflected from the light contrasting reflective points on the golf club and golf ball, and generating a first signal for calculation and analysis, the first signal being the first exposure taken by a camera as in Fig. 9, 102a; pg. 4, par. 63, light sensing camera's are charge coupled device (CCD) camera's),

a positional information computing unit operable to compute positional information of the reflecting surface on the basis of the first signal generated by the light sensing unit (Manwaring, pg. 3, par. 54, processed final pairs; Fig. 9A, first signal is the first exposure at time 100 ms; pg. 5, par. 73).

Manwaring however does not expressly disclose the light sensing unit being a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension.

Watanabe discloses an imaging system, analogous in art with that of Manwaring, wherein a light sensing unit is a pixel array; a pixel array including a plurality of pixels

arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension (Watanabe, col. 1, ll. 41-60).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to substitute the light sensing unit of Manwaring with a pixel array; a pixel array including a plurality of pixels arranged along a first dimension, and a plurality of pixels arranged along a dimension perpendicular to the first dimension, as taught by Watanabe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been a smaller amount of power consumption (Watanabe, Abstract).

Manwaring as modified by Watanabe however fails to expressly teach an image display processing unit operable to display a cursor on the display device and move the cursor in accordance with the positional information of the reflecting surface.

Numazaki discloses an apparatus for generating information from an input using reflected light image of a target object, analogous in art with that of Manwaring as modified by Watanabe, wherein an image display processing unit is operable to display a cursor on the display device and move the cursor in accordance with the positional information of the reflecting surface (Numazaki, col. 26, ll. 8-14).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the information processing device of Manwaring as modified by Watanabe such that an image display processing unit is operable to display a cursor on

the display device and move the cursor in accordance with the positional information of the reflecting surface, as taught by Numazaki.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide a user with a cursor operable in three-dimensional space (Numazaki, col. 1, ll. 51-56).

Claim 49 is rejected as being dependent on rejected claim 48 as discussed above and further, Manwaring modified by Watanabe and Numazaki teaches wherein, responsive to the cursor being displayed so as to be overlapped on a predetermined object, the image display processing unit displays an image associated with the predetermined object on the display device (Numazaki, Fig. 21-22; col. 27, ll. 19-29).

Claim 50 is rejected as being dependent on rejected claim 48 as discussed above and further, Manwaring modified by Watanabe and Numazaki teaches wherein the image display processing unit display a character selected by the cursor on the display device (Numazaki, Fig. 21-22, col. 28, ll. 33-41).

Claims 34, 35, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manwaring (US 2002/0098897) as modified by Watanabe et al. (US 6,023,293), and further in view of Purdy (US 6,191,799).

Claim 34 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe however fails to expressly teach wherein the first object representing the movement locus comprises a beltlike object, the image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display so that a width of the beltlike object varies for each prescribed unit which includes a frame, and the width of the beltlike object increases as the frame is updated, and thereafter decreases as the frame is updated.

Purdy discloses a method for altering the appearance of an animated object, analogous in art with that of Manwaring as modified by Watanabe, such that the first object representing the movement locus comprises a beltlike object (Purdy, Fig. 3B; col. 4, ll. 56-col. 5, ll. 15),

said image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display device so that a width of the beltlike object varies for each prescribed unit which includes a frame, and the width of the beltlike object increases as the frame is updated, and thereafter decreases as the frame is updated (Purdy, Fig. 3B; col. 4, ll. 56-col. 5, ll. 15).

At the time the invention was made it would have been obvious to one having ordinary skill in the art to modify the apparatus of Manwaring as modified by Watanabe such that the first object representing the movement locus comprises a beltlike object, the image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display device so that a width of the

beltlike object varies for each prescribed unit which includes a frame, and the width of the beltlike object increases as the frame is updated, and thereafter decreases as the frame is updated, as taught by Purdy.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to take advantage of the dynamic alteration in appearance of animated objects to immediately convey to a user a change in data represented by the object (Purdy, col. 4, ll. 56-col. 5, ll. 15).

Claim 35 is rejected as being dependent on rejected claim 34 as discussed above and further, Manwaring as modified by Watanabe and Purdy teaches wherein the image display processing unit displays a second object on the display device (Manwaring, Fig. 12-13),

said state information computing unit generates a second trigger responsive to positional relation between the second object and the first object representing the movement locus of the operation article meeting a predetermined condition (Manwaring, Fig. 12-13; pg. 3, par. 54, processed final pairs; Fig. 9A, second trigger is the second exposure at time 895.9 ms; pg. 5, par. 73),

and the image display processing unit displays a predetermined effect on the display device in response to the second trigger (Manwaring, Fig. 12-13; pg. 3, par. 54, processed final pairs; Fig. 9A, second trigger is the second exposure at time 895.9 ms; pg. 5, par. 73).

Claim 37 is rejected as being dependent on rejected claim 33 as discussed above and further, Manwaring as modified by Watanabe however fails to expressly teach wherein the first object representing the movement locus comprises a beltlike object, the image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display device so that a width and a length of the beltlike object vary for each prescribed unit which includes a frame, and the beltlike object increases in length as the frame is updated, and responsive to the length becoming a predetermined length, the width of the beltlike object decreases as the frame is updated.

Purdy discloses a method for altering the appearance of an animated object, analogous in art with that of Manwaring as modified by Watanabe, such that the first object representing the movement locus comprises a beltlike object (Purdy, Fig. 3B; col. 4, ll. 56-col. 5, ll. 15),

the image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display device so that a width and length of the beltlike object vary for each prescribed unit which includes a frame, and the beltlike object increases in length as the frame is updated, and responsive to the length becoming a predetermined length, the width of the beltlike object decreases as the frame is updated (Purdy, col. 4, ll. 56-col. 5, ll. 15; col. 11, ll. 46-65).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the apparatus of Manwaring as modified by Watanabe such that the first object representing the movement locus comprises a beltlike object,

the image display processing unit represents the movement locus of the operation article by displaying the beltlike object on the display device so that a width and a length of the beltlike object vary for each prescribed unit which includes a frame, and the beltlike object increases in length as the frame is updated, and responsive to the length becoming a predetermined length, the width of the beltlike object decreases as the frame is updated, as taught by Purdy.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to take advantage of the dynamic alteration in appearance of animated objects to immediately convey to a user a change in data represented by the object (Purdy, col. 4, ll. 56-col. 5, ll. 15).

Response to Arguments

Applicant's arguments with respect to claims 33-62 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES HICKS whose telephone number is (571)270-7535. The examiner can normally be reached on Monday-Thursday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Beck, can be reached on 571-272-7765. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CH

/Alexander S. Beck/
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